Approximate Computing: Design, Acceleration, Validation and Testing of Circuits, Architectures and Algorithms in Future Systems

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Message from the Guest Editor

The applicability of approximate computing has represented a breakthrough in many scientific areas, making AC a step closer to being one of the mainstream computing approaches in future systems. For several application domains, especially those related to human perception, the approximate results might turn out to be hard to distinguish from perfect results, opening the application of AC for system designers.

Suitable solutions will not be fully realized in a single layer only. Therefore, applying AC in different layers of hardware, architecture, software and algorithms should be investigated. Moreover, while the hidden cost of AC is a reduction of an application's inherent resiliency to errors, AC has also recently been demonstrated to be effective in safety-critical applications.

This Special Issue on AC will explore exciting, new ideas in the field of approximate computing, covering cross-layer design methodologies bridging the circuit, architecture and algorithm levels. It will also include connections between the AC paradigm and the safety, verification, testing and reliability of digital systems.

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Special Issue

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Message from the Editor-in-Chief

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